

## REMARKS

An Amendment filed January 30, 2006 in response to the Final Office Action was not entered by Examiner. This Preliminary Amendment, submitted for filing with an RCE being filed concurrently herewith, is responsive to the Final Office Action mailed September 30, 2005 and the Advisory Action mailed February 14, 2006, and replaces the Amendment filed January 30, 2006.

The Advisory Action indicated that the "majority of the amendments overcome the claim deficiencies, the proposed change in claim 11, line 4 "said work" lacks antecedent support." (See continuation of block 3, attached to the Advisory Action.)

Applicants bring to the attention of the examiner that in the Preliminary Amendment claim 11 is amended so as to provide proper antecedent basis.

In accordance with the foregoing, the specification, and claims 1, 2, 5-7, 11-12, and 14 are amended.

No new matter is presented in any of the foregoing and, accordingly, approval and entry of the amended claims are respectfully requested.

### **CLAIM AMENDMENTS**

Claims 1, 6, and 11 are amended herein to clarify a system, a program embodied on a medium, and a method, using claim 1 as an example, include "a numerical control (NC) apparatus for cutting a work according to NC data, the work being an object before cutting; . . . wherein said geometric model data is obtained by measuring said work to be cut, and generates a cutting margin model that is a difference between said measured work geometric model and said CAD model; and an NC data generator that generates NC data causing said NC apparatus to carry out cutting, based on the generated cutting margin model."

Claims 2, 5, 7, 12, and 14 are amended to correspond to respective independent claims and to correct informalities. No new matter is presented in any of the foregoing and, accordingly, approval and entry of the amended claims are respectfully requested.

### **ITEM 3: OBJECTION TO SPECIFICATION**

The Examiner objects to the specification because of informalities. The specification is amended herein to correct informalities and withdrawal of the objection to the specification is requested.

### **ITEM 4: OBJECTION TO CLAIM 1**

In item 4 of the current Action, the Examiner objects to the claim 1 because of informalities. Claim 1 is amended herein, as the Examiner suggests, to recite a cutting margin

model generator that "obtains a computer-aided design (CAD) model," and withdrawal of the objection is requested.

**ITEMS 6-12: REJECTION OF CLAIMS 1-10 AND 12 UNDER 35 U.S.C. §112, SECOND PARAGRAPH**

Claims 1-10 and 12 are rejected under 35 U.S.C. §112, second paragraph as being indefinite.

In item 7, the Examiner rejects claim 1 contending it is unclear "if the apparatus or the work is an object." Claim 1 is amended herein to recite a system including an apparatus for cutting a work "the work being an object before cutting," and withdrawal of the rejection is requested.

In items 8, 11 and 12, the Examiner rejects respectively, claims 2, 7 and 12 as "said cutting margin" lacking antecedent basis. Claims 2, 7, and 12, are amended herein to recite, using claim 2 as an example, "a cutting margin exists in said cutting margin model." Withdrawal of the rejection is requested.

In item 9, the Examiner rejects claim 5 since "said storing means" lacks sufficient antecedent basis. Claim 5 is amended herein to replace "storing means" with --storing unit-- having proper antecedent basis, and withdrawal of the rejection is requested.

In item 10, the Examiner rejects claim 6 contending it is unclear "if the program is for machining(cutting) a work, of(or) if the apparatus is for machining(cutting) the work." Claim 6 is amended herein to recite a program on a medium "causing a computer connected to a numerical control (NC) apparatus to control said NC apparatus to cut a work." Withdrawal of the rejection is requested.

Applicants submit that claims 1-10 and 12 comply with 35 U.S.C. §112, second paragraph and withdrawal of the rejection is requested.

**ITEMS 14-15: REJECTION OF CLAIMS 1-4, 6-9 AND 11-14 UNDER 35 U.S.C. §102(b) AS BEING ANTICIPATED BY MAEDA ET AL (U.S. PAT 5,796,618) AND REJECTION OF 1-15 UNDER 35 U.S.C. §102(e) AS BEING ANTICIPATED BY RICHEY (U.S. PUB 2003/0033041)**

In items 14 and 15, the Examiner rejects claims 1-4, 6-9 and 11-14 under 35 U.S.C. §102(b) as being anticipated by Maeda and rejects claims 1-4, 6-9, 11-14 under 35 U.S.C. §102(e) as being anticipated by Richey. The rejections are traversed.

**Action Is Incomplete**

Applicants argued in the previous Amendment filed July 25, 2005 in response to the previous Office Action mailed March 24, 2005 that Maeda does not teach, using claim 1 as an

example, a CAM system including "a numerical control (NC) apparatus for machining(cutting) a work, the work being an object before machining (cutting)."

In response to the arguments, the Examiner merely contends that "(s)pecific language of that assertion is only found in claim 1 and not claims 6 and 11." (Action at page 8).

Applicants respectfully submit that the current Office Action is incomplete since the Examiner has not responded, at all, to at least some of the Applicants' arguments traversing the rejections.

Accordingly, Applicants request that if the case is not allowed that another Action be issued with the arguments completely addressed and the response date reset.

#### **Features Of Independent Claims Not Taught By Cited Art**

Applicants submit that features recited by each of the independent claims are not taught by the cited art. Independent claims 1, 6, and 11 recite a computer-aided manufacturing (CAM) system, a computer-aided manufacturing (CAM) program embodied on a medium, and a method, using claim 1 as an example, including "a numerical control (NC) apparatus for cutting a work according to NC data, the work being an object before cutting; a cutting margin model generator that obtains a computer-aided design (CAD) model that is solid model data of a metal mold to be made and a measured work geometric model that is geometric model data of said work, wherein said geometric model data is obtained by measuring said work to be cut, and generates a cutting margin model that is a difference between said measured work geometric model and said CAD model; and an NC data generator that generates NC data causing said NC apparatus to carry out cutting, based on the generated cutting margin model."

According to aspects of the present invention the "measured work geometric model" is "obtained by measuring said work to be cut." The work is "an object before cutting". Since the measured work geometric model is handled, according to aspects of the present invention, it is understood by those skilled in the art, that additional operations can be achieved with improved accuracy.

Maeda merely teaches a before-machining shape model creating unit 11 is included in a CAD apparatus 10. Therefore, in a system as taught by Maeda, the before-machining shape model creating unit 11 generates the before-machining shape model as CAD data, and is not obtained by measuring the work to be cut.

Therefore, a system as taught by Maeda cannot handle effectively other operations in which complicated shapes are involved.

Applicants respectfully point out that Richey is directed to "Assembly," and not "cut" or

"cutting." Richey does not teach, using claim 1, for example, generating a "cutting margin model that is a difference between said measured work geometric model and said CAD model; and . . . that generates NC data based on the generated cutting margin model," since the "assembly" is handled in Richey and Richey teaches a comparison to alter position, not to generate NC data.

Applicants further submit that claims 6 and 11 respectively recite a CAM program and a method operating on "work to be cut (emphasis added)." That is, the work is not yet cut.

The Examiner contends that Richey teaches:

paragraph 48 provides a comparison of actual models and authority models to optimize an authority model, which the Examiner considers to read on a cutting model.

Applicants submit that the Examiner's contention is incorrect since Richey discusses in paragraph [0048], rather, that a comparison of the actual models and/or authority models is only so modes "at last partially align." That is, Richey does not teach generating "a cutting margin model (*arguendo* a final authority model) that is a difference between said measured work geometric model (*arguendo* actual model) and said CAD model and generates NC data based on the generated cutting margin model."

The Examiner also cites paragraph [0049] in support of the authority model in Richey teaching solid model data as recited by claim 1.

Applicants submit that Richey does not teach the features as the Examiner contends. Rather, Richey teaches:

the system 10 for producing an assembly].x comprises both hardware and software elements for utilizing the nominal authority models 12 in the manufacturing process o the assembly.

(Emphasis added)

That is, Richey does not use the terms, nor teach, "cut" or "cutting", and is not directed to cutting of the work.

Further, the Examiner cites paragraph [0048] as providing "a comparison of actual models and authority models, which the Examiner considers to read on a cutting model."

However, the comparison is not directly linked to "the cutting margin model." Since Richey teaches "assembly," Richey teaches "the metrology module can perform a comparison and thereby to alter the position of the actual models . . ." That is, the actual models or the like are simply moved, and the assembly does not need to generate a cutting margin model.

Applicants submit there is no description and suggestion for the generation of the model and cutting of the work in Richey

The Examiner also contends "at block 52, manufacturing index information is imbedded into the 3D CAD model, producing in paragraph 50 "final authority models", again considered the cutting margin mode."

Applicants point out that Richey in paragraph [0060] defines "final authority models, which are made up of the authority data sets." Therefore, the final authority models are not the cutting margin model that is a difference between a measured work geometric model and a CAD model. Further, critical information or tolerance information in Richey does not correspond to a difference between the actual model (the measured work geometric model} and the final authority model (the CAD model).

Since Richey teaches "assembly," NC programs generated in Richey do not cause any element to cut any materials.

#### **Features Of Dependent Claims Not Taught By Cited Art**

Further, dependent claims recite features not taught by the cited art. For example, dependent claims 2, 7, and 12 respectively recite a CAM system and a CAM program, using claim 2 as an example, including generating "NC data to cut said work." Richey does not teach NC data to cut a work.

As another example, dependent claims 3 and 8, respectively recite a CAM system and a CAM program, using claim 3 as an example, including "a unit that measures a tool form in a state in which said tool is installed to said NC apparatus, and generates a tool model, and wherein said NC data generator generates said NC data based on both of said cutting margin model and said tool model."

The Examiner contends that "this degree of wear is used to model the tool." However, Applicants submit that this interpretation is incorrect. In Maeda, there is no description and suggestion for modeling the tool by using the degree of wear. Rather, the degree of wear is used to simply optimize the machining condition. Therefore, there is no description to use the shape of the tool in Richey in order to generate NC data causing the NC apparatus to carry out cutting.

As another example, claims 4, 9, and 14 respectively recite features of a system, a program and a method including "an instruction so as to move a tool . . . according to a tool load state informed from said NC apparatus."

The Examiner incorrectly contends these features are taught by Maeda's discussion of a motor relating to the operation of the tool, and by Richey teaching a robot arm moving a tool.

Applicants submit that it is understood in the art that merely teaching a motor or moving

of a tool with a robot arm does not teach moving a tool "according to a tool load state."

Applicants submit that the noticed fact is not of notorious character or capable of instant and unquestionable demonstration as being well-known. Instead, this feature is unique to the present invention, and there is no evidence supporting the Examiner's assertion. See M.P.E.P. § 2144.03(B) ("there must be some form of evidence in the record to support an assertion of common knowledge"). Accordingly, Applicants demand the Examiner provide support for the same.

If the Examiner instead bases the rejection on personal knowledge, the Examiner is required under 37 C.F.R. § 1.104(d)(2) to support such an assertion with an affidavit when called for by the Applicant. Thus, Applicants call upon the Examiner to support such assertion with an affidavit.

### **Summary**

Since features recited by claims 1-15 are not taught by the cited art, the rejection should be withdrawn and the claims 1-15 allowed.

### **ITEM 17: DISPOSITION OF CLAIMS 5, 10, AND 15**

In item 17 of the Office Action the Examiner indicates that:

(c)laims 5, 10 and 15 are not rejected on art however, they are also not considered to contain allowable subject matter... While an art rejection has not been presented above, the Examiner considers the limitations of claim 5, 10 and 15 to be an obvious variation of the rejected base claims.

(Action at pages 9-10).

Applicants submit that any such contention by the Examiner that, using claim 5, as an example, a CAM system including an apparatus for a numerical control (NC) apparatus for cutting with "a unit that displays said measured work geometric model, which is colored based on load data in said monitoring data stored by said storing unit" is an "obvious variation," must be properly supported.

Further, such a contention by the Examiner that the features are an obvious variation must be properly supported by a motivation in the prior art, itself, to modify an art to use such a colored display based on load data for cutting.

### **Summary**

Since the Examiner's contentions are not properly supported, claims 5, 10, and 15 should be allowed.

### **CONCLUSION**

There being no further outstanding objections or rejections, it is submitted that the

application is in condition for allowance. An early action to that effect is courteously solicited.

If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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Date: February 28, 2006

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